A CASE STUDY OF THE WILDLIFE PRESERVE IN LARGO, MARYLAND

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of

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by

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April, 1975

Washington, D. C.

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This dissertation was approved by Jules Lichtenstein,

Professor Jules ~~H. Lichtenstein~~, as Director, and by

Kenneth Bertrand, Professor Kenneth J. Bertrand, as

Reader.

DEDICATION

To My Parents

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INTRODUCTION

Growth of Outdoor Recreation in U.S.

In the United States we have been witnessing the continuing increase in the need and demand for outdoor recreational areas since World War I. However the perpetuation of this trend was tremendously spurred onward by certain factors that occurred after World War II. These factors include the increase of leisure time in the United States, the greater mobility due to improved transportation facilities and income changes, and, of course, population changes. In addition, according to Seymour M. Gold, "The need for outdoor recreation is directly proportional to the degree of urbanization."[1] As one well knows, the degree of urbanization has been increasing for Americans. By the year 2000, 73% of Americans will be living in metropolitan areas. Mr. Gold states that the need for outdoor recreation is based primarily on (1) man's biological need to retain some association with the outdoor and (2) man's psychological need for contrast and change in spacial surroundings and activities. Trevelyan has the following to say, "We are literally children of the earth and removed from her our spirit withers or runs to various forms of insanity."[2] By projected data, the fact that even though the population will probably double to 350 million by the year 2000, the demand and need for outdoor recreation will most likely triple.

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[1] Seymour M. Gold, Urban Recreation Planning (Philadelphia, 1973), p. 47.

[2] Gold, p. 48.

However, the demand for recreational opportunities a half hour from home is estimated to increase tenfold.

As has been stated, one of the reasons for this increasing demand stems from the increase in leisure time for the average American. "The average citizen now has more than 3,000 hours of leisure a year....75 years ago the average man spent 26% of his time working and had 7% remaining for leisure."[3] This leisure time will develop from the fact that there may be fewer hours per working day, fewer working days per week, as well as longer paid vacations per year. As far as changes in population, there will be more young people between the ages of 15 to 24, the most active age group, and more retired or semi-retired persons who still want to enjoy an active life. It has been found that education affects participation much the same as income does. In general, it has been shown that the higher the level of education and the higher the income the greater demand for or increase in outdoor recreational activities/areas. Needless to say, both income and educational levels have been on the rise in America. Therefore it is very easy to see why participation in outdoor recreation during each summer will increase to 6.9 billion activity ocassions(participation by an individual in a single recreation activity during a day) in the very near future. And by the year 2000 this figure could rise to over 12.4 billion activity ocassions. The following quote states my feeling exactly. "The new position of outdoor recreation in our culture

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[3] Gold, p. 46.

means that wildlife must have a new and improved standing among renewable resources. Its chief significance for the foreseeable future will be as a recreational resource."[4]

In this study I shall endeavor to explore outdoor recreation as it applies to wildlife. In particular a case study of the development of The Wildlife Preserve in Largo, Maryland,will be undertaken. A brief study of public wildlife refuges, that provide outdoor recreational opportunities as well as open space will also be explored.

My method of study was based upon essential materials obtained from The Wildlife Preserve, The Department of the Interior, and The Maryland National Capital Park and Planning Commission in Prince George's County.

Problems

The problems that face the subject of recreation on a regional and county scale are enormous. Where the need is the greatest--the urban area--no land is available. Some counties have a deficit of recreational/ open space land while others have a surplus. Therefore, there must be a regional as well as local planning coordination. Travel time to recreational activities/areas should ideally be half an hour. However, due to inadequate transportation access, many urban residents are limited in their use of recreational and open space opportunities. Not only must more recreational and open space opportunities or facilities be provided,

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[4] National Academy of Sciences, Land Use and Wildlife Resources, (Washington, D.C., 1970), p. 42.

but the quality of the facilities must be maintained. In addition, facilities must be provided for the aged and the handicapped since in the past they have been shamelessly overlooked and neglected.

Until recently when urban outdoor recreation facilities planning was done it assumed that a typical population with typical interests really did exist. This type of attitude produced a plan that was not satisfactory since the many varied values of different ethnic, economic, age, and sex groups of the urban population were not incorporated. Land, facilities personnel and financial resources are mandatory for establishing recreational opportunities; and these are most definitely limited in urban areas--the areas where they are most needed. In particular with reference to Prince George's County's problem, the following have been shown to exist. There is tremendous pressure to provide more bicycle paths and natural areas by various interest groups. In addition, financing and the establishment of new provisions for recreation standards are necessary.

Presently, it has been estimated that there are approximately 2.3 billion acres of land and water in the United States. Of this amount, 1/8 of the Nation's total land and water areas that are included in non-urban areas and are ear-marked for some type of recreational use. The preservation of open space is essential and important for many reasons. It has been demonstrated time and time again that urban growth

encroaches on open space both at the edges of and within the urban area. Thus, a lack of open space is produced at the very spot it is so badly needed, since it is here also where the population and demand are the greatest.

The problem of metropolitan open space is not that of its lack but of its improper distribution. Therefore the opportunity for a contact with nature, for recreational areas,and for breathing space, so to speak, for an increasing urban population is diminished. Lack of urban open space is important not only for recreational opportunity, or for scenic, historic and wildlife resources but for varied conservation aspects. Urban open space helps to prevent floods, drought, erosion, humidity, and air pollution. In addition open space can be used for controlling the location and timing of urban development. It also acts as a buffer between communities and therefore helps to prevent the merging of them into one big subdivision. The low densities that are established by open space help to provide for and insure good mental and physical health. Many have found that by having open space land adjacent to their property their property values have been enhanced.

"Urban open space land is an irreplaceable national resource that is disappearing at the rate of 1 million acres a year. It is expected that the total amount of land in development for urban purpose will double before 1980."[5]

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[5] Department of Housing and Urban Development, Open Space for Urban America (Washington, D.C., 1965), p. 1.

Urban land, needless to say, is becoming more and more expensive. Presently the competition for urban open space land that is suitable for recreational use is increasing. This competition exists with respect to waterfront land that is also valuable for residential and industrial use and to land that parallels major highways, which could be ideal bycycle paths and picnic areas, that is being eyed for commercial enterprises.

However, Americans are becoming more aware of the fact that open space is a matter of survival for the human race because the ecosystem of this planet has to continue to work properly. The pressures of population, and the deterioration of the land, water and air and the chance for opportunities in outdoor recreation activities being diminished are no longer being taken for granted.

Types of and Approaches to Open Space

Open space can be broken down to consist of the categories of utility spaces, green spaces, and corridor spaces. Utility spaces include surface land that functions as basic resources. Under this particular category are included the following land uses: resource lands such as forests, grazing-lands, mining lands and agriculatural lands; land designated for flood control and drainage such as flood plains, flood banks, and watersheds; lands that are determined for direct needs of urban areas such as dam sites and land fills; reserves and preserves which encompass areas set aside for wildlife refuges, sanctuaries, and forests that are not used

for timber or recreation. The aforementioned help to meet the needs of open space in the metropolitan region several ways. Urban agricultural land, if kept by private concerns, is a way of helping shape development and, in addition, of preserving scenic vistas for all. With a minimum degree of access for the public, farms can provide a limited type of recreational facility that would prove beneficial to the farmer and to the urbanites. Wetlands are invaluable as a type of open space. In addition to the conservational and recreational opportunities they produce, wetlands help to reduce the incidence of floods and drought. Green spaces include landed areas such as primitive or wilderness areas; protected areas that consist of public wildlife refuges, scenic area, coastline and shore areas that are designated to be free from urban encroachment; natural park areas such as state parks, regional parks and national parks and forests; urban park areas like zoos, botanical gardens and nature trails; and recreation areas. Corridor open spaces function is that of passageway such as rights-of-way spaces, landing spaces and scenic and environmental corridors.

Before I deal with the approaches to open space planning at regional and county levels I would like to start with a bit of advice from Ian McHarg. "Criteria for metropolitan open space should derive from an understanding of natural processes, their value to man, their permissiveness, and their prohibition to development."[6]

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[6] Department of Housing and Urban Development, p. 13.

The procedure of planning for regional open space consists of 4 major phases as set forth in HUD's pamphlet, Open Space for Urban America. The first phase deals with making the necessary inventories and projections that answer questions relating to the supply and demand for open space. The second phase is for plan formulation, and here is asked how much and what kind of open space should be kept to meet the demand. Plan implementation is what phase 3 is all about. In this particular phase one looks at the manner by which the land should be preserved and by whom. Phase 4 is where the programming for initiating action occurs. Exactly how and on what schedule the plan should be carried out is determined here. During the inventory and projection phase, basic characteristics that affect supply and demand factors are established. Many of these projections and inventories have already been covered in the comprehensive plan for the particular metropolitan region dealt with. Explored and inventoried are the governmental and institutional organizations that may have some relation to the supply and demand factors that are being looked into. Needless to say, an inventory of what the present uses and characteristics of land are accomplished during this phase. Some sort of land use classification system is employed along with the use of maps. Existing open space lands and non-urbanized lands are located since they are especially important to know when dealing with open space planning. In addition to determining the types of land uses, the market and assessed value, with the current zoning and other regulations that control future development

are obtained. People create demand. Therefore, it is necessary to make analysis of the current and projected number of inhabitants of the particular region dealing with and of its characteristics and habits. Population density, present and projected leisure time, social and economic composition, income and recreation preference are included in the analysis. Included in the first phase are inventories that help to establish the present and potential open space activities of each agency and group. The second phase deals with the formulation of an open space plan by showing the amount, location and pattern of proposed open space. This will be dependent upon standards and goals adopted by the region and by the influence of the region's comprehensive planning. During this phase the mapping of recreational resources is done in order to establish their potential for meeting the demands of the various user groups; also the maximum possible use for each particular resource but still not causing deterioration of its quality is established.

The amount of land that is established for conservation purposes and for shaping development depends upon the region's natural features and on the regional comprehensive planning objectives and policies. Open space is not the only element that helps to shape future urban development. Other determinants included in a region's planning process and objectives will include locations of transportation routes, employment centers, residential areas and the like. There is an interrelationship between open space and the other elements previously mentioned. Where there are con-

flicting demands for land different tests may be employed. One is to determine the extent the completion of land-use goals can be carried out in alternate sites. Another way is to evaluate both short and long-term, direct and indirect benefits that would occur from each land use. In addition, evaluating public pressures for each goal and how these pressures relate to the other land use goals of the area is important. Phase 3 establishes the recommendation for the alternative measures for preserving open space and, therefore, the implementation of the plan. In this phase, first identified are the minimum number of areas that deem public ownership feasible and necessary. Usually the land that is identified for public ownership in a region would be land foreseen as active recreational areas, or land that is in near danger of development, or land that is very valuable. The information on land patterns and values that were determined in the first phase are very useful in phase three. Besides acquisition and other open space preservation methods, another way is by additional actions within the region such as the extension of highways and utilities in a certain calculated manner that helps to lower the pressures of development on land designated for low density or open space uses. Also plans should be made so that new highways and utilities will be directed into areas planned for development and away from open space lands. All in all, phase 3 accomplishes the formulation of recommendations for various actions to be undertaken by designated agencies. The last phase establishes the priorities and schedules. In other words, timing is a key ingredient in the programming phase. Because scheduling the actions of many different

actions on regional level is very hard to accomplish, this last phase is often overlooked. However, it is very important that priorities and schedules for each agency that wants to obtain open space be established because of financial factors. Where and when funding will come from and be available has to be taken into account since the acquisition period could span a considerable number of years. Priorities at a regional level can be made on the following considerations: (1) estimated land cost, (2) natural value of the site, (3) balanced geographic distribution, (4) danger of loss to development, (5) potential for multiple use, (6) existence on availability of alternative sites, (7) relative urgency of demand, and (8) availability of funds.

The planning steps for an open space program at the county level are primarily the same as for regional open space planning: inventories and projections, plan formulation, implementation of required and necessary actions and development of schedules for action. Most counties in conjunction with the comprehensive planning process prepare open space plans. However, in many cases this planning may be done without giving thought to the relationship of the plan on a regional scale. In general, county open space planning usually include lands for parks and recreation and not all that much for open space as a tool for guiding future land use or development.

Legal approaches for maintaining open space which can provide beneficial amenities to visitors, neighboring communities, as well as wildlife,

are discussed in the next chapter.

CHAPTER 2

TECHNIQUES FOR MAINTAINING OPEN SPACE

There are several important techniques that can be used to set aside and maintain open space. These include zoning, subdivision control ordinances, official mapping, acquisition, taxation, and land banking. The following discussion will briefly outline the significance of these methods.

Zoning

Zoning is one of the primary regulatory approaches for land use that is available at a municipal level and is generally the major land use control tool employed in the U.S. It is protective to a limited degree. It has been shown that zoning laws can be altered due to different special interest pressure groups. Zoning is used to regulate the density of development, to help balance large scale development and to protect natural resources. Zoning laws are granted by states to local governments in order to promote safety, public health and general welfare by providing sufficient air space, parks, and by controlling population distributions and the uses of land.

Zoning techniques can be put into 3 major categories: natural resource zoning, historical zoning, and development zoning. Natural resource zoning can be used as a way to protect flood plans, marshes, water supply

sources, ridges, agricultural land and forests from the ever present threat of increasing urban encroachment. Flood plain zoning prohibits the use of land that is flooded frequently. Flood plain zoning is a valid use of police power since it enables the health, safety, and general welfare to be maintained. In flood plains or floodways usually only open space uses are permitted. However permitted uses might include public and private recreation areas such as parks and driving ranges. Another category under natural resource zoning is conservation zoning. It can be used to protect wetlands which serve as wildlife refuges, and to protect watersheds that serve to protect lands from fire and erosion.

Development zoning has been used more by urban areas than has natural resource zoning. Under the category of development zoning are included large lot zoning, density or cluster zoning, large-scale development and timed development zoning. The regulatory measure of large lot zoning preserves open space in metropolitan areas by discouraging development or by diffusing development in such a manner that an open appearance of the land is maintained. Density or cluster zoning produces greater chances for open spaces by grouping the houses in a tighter and more cohesive pattern, thus saving money for the developer and also producing more open land(from 40%-60%), and therefore, more benefits for the residents. This type of zoning has been found to be more beneficial than has large-lot zoning. Timed development zoning allows development to exist in certain areas and not in others. However the words "timed development" implies

that at some time development will be permitted. Therefore, this particular regulatory measure might not be all that strong for preserving open space land for long periods of time. Historic zoning is instrumental in preserving historic areas and therefore has an effect on preserving open space to a degree.

Subdivision Control Ordinances

Subdivision Control Ordinances, although used to a lesser degree than zoning, are another technique for maintaining urban open land. Due to the regulations on the types of subdivisions that are to be built and the requirements for sewerage and water lines, open space requirements may be established.

Official Mapping

Official mapping is yet another form of regulatory measure in helping to preserve open space. This map is used by communities and outlines the areas that are to be left open in a community. One must take into account the fact that all the regulatory measures mentioned previously are vulnerable to political, legal or economic pressures.

Acquisition

Acquisition of open space land that would be suitable for recreational uses as well as other uses is one of the surest methods to preserve open space. Acquisition can be made through the practice of eminent domain, easements, fee and less-than-fee acquisition techniques, right-of-way,

installment purchase, lease, convenants, licenses and the acquisition of tax delinquent land. Easements have been widely used for the purpose of preserving open space. Acquisition of easements can be by purchase, gift, or condemnation. Easements are either affirmative or negative. They are of a positive nature when they give local government and the public the right to use the land for indicated purposes such as riding, hiking, etc.; and negative when they give no public right to use the land and in addition limit the uses to which the owner can put his land. There are conservation and scenic easements that are now in effect.

Taxation

Taxation influences land use. The real property tax has shown the greatest influence, and thusly has been given a lot of consideration for the preservation of open space land. Three techniques employed have been preferrential assessment, exemption and tax deferral. The tax deferral method is seen as the more promising of the methods noted. In addition, a new innovative approach/proposal in the area of taxes has been made that suggests that the Federal income tax law be amended to allocate a certain amount of the capital gains taxes from sales of lands for the Federal purchase of public open space.

Land Banking

Land banking has been used as a technique of preserving open space. As its name implies it banks or stores land in its natural state until possible future use of a different or same nature. To accomplish this

technique one can simply buy up substantial amounts of land, or option the lands wanted. In addition the banking of or storing up land, can be legislated through zoning and rezoning. At a town or small city level this technique could prove very beneficial and quite feasible.

All in all....

> "The only real means that any community has for keeping urban land open in the long run lies in the attitudes and actions of its citizens. If citizens are conscious of the value and need for open space, for more nature around them and in their lives, ways and means will be found to keep a certain amount of greenspace viable in a community. If they know little and care less about nature, natural beauty, and other natural amenities, all the zoning and ordinances in the world will not preserve their greenspace for long.....if open land is to remain a part of the urban American setting, nature appreciation and natural area awareness must be made part of the lives of Americans."[7]

The Wildlife Preserve in Largo, Maryland will be shown to be an important means of preserving open space while affording outdoor recreational opportunities to metropolitan residents. It has retained 95% of the original development site in its natural state while stocking the area with various types of animals to provide educational and recreational opportunities for the populace of the Greater Metropolitan Washington Area.

In succeeding Chapters the general background and description of

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[7] Joseph J. Shomon, Open Land for Urban America (Maryland, 1971), p. 69.

The Wildlife Preserve, including its physical lay-out, local land use and future impacts will be discussed. In addition a brief description of public wildlife refuges will be presented.

CHAPTER 3

GENERAL BACKGROUND AND DESCRIPTION OF THE LARGO WILDLIFE PRESERVE

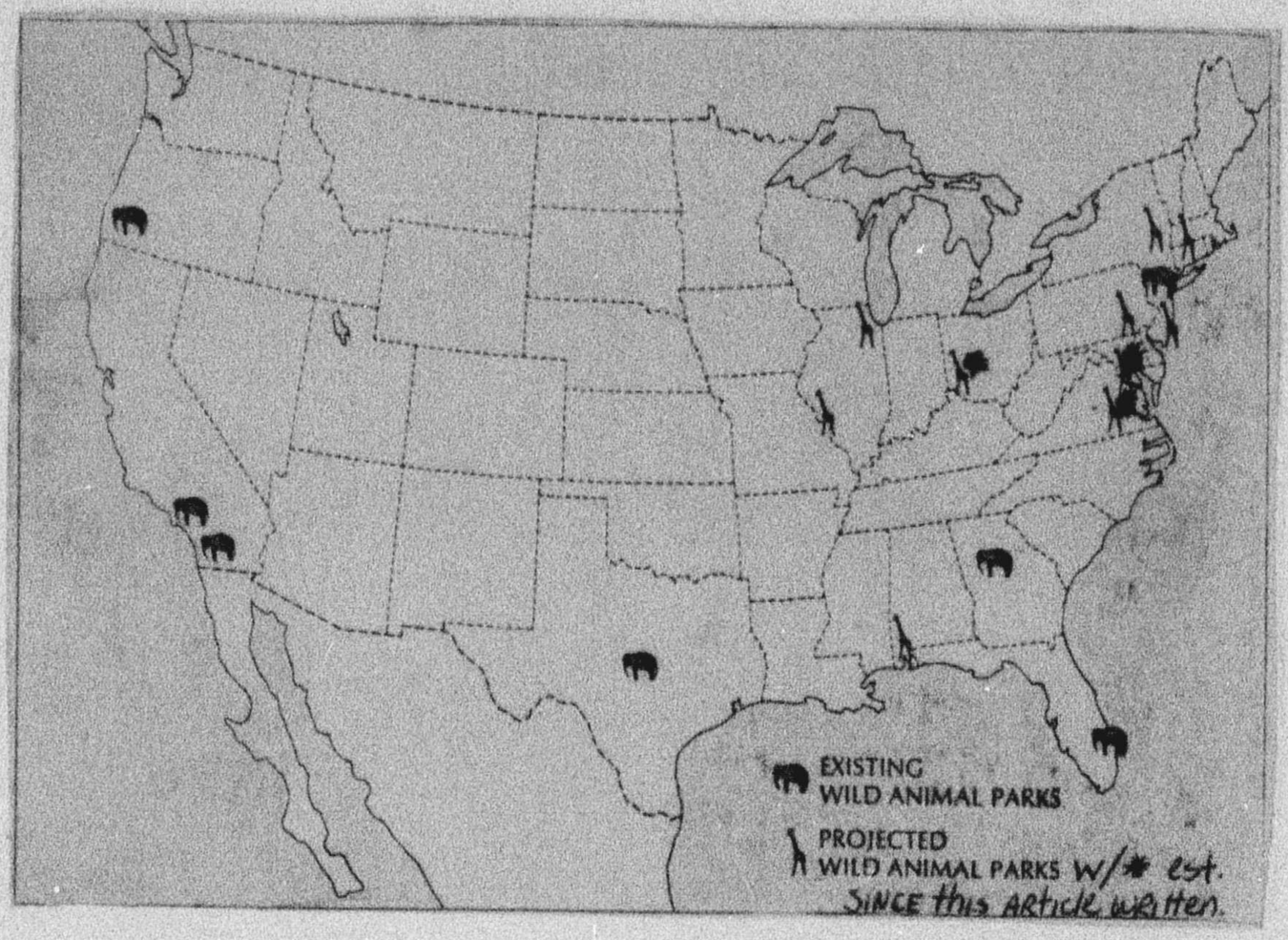
Similar Trends

The Wildlife Preserve in Largo, Maryland, is not unique in its concept or its existence. As far back as the Colonial days private wildlife preserves were in existence. Many deer parks were established during the seventeenth century in the States of Maryland, Virginia and North Carolina. During the Revolutionary Period in this country most of these preserves vanished. However, by 1850 the wildlife preserves began to reappear and ever since have continued to increase in number.

The first drive-through zoological park and wildlife preserve that served as a model for any animal park now in existence or planned for future development was known as "Lions of Longleat" which started operation in 1965 at a site 60 miles south of London in Longleat, England. Since 1965, 10 parks designed and operated along the concept of the Longleat Park have been opened. They are located in California, Oregon, Texas, Ohio, Florida, New Jersey, Virginia, Georgia and Maryland. Seven more wildlife preserves or "zoos of the future" as they have been called, are planned for future development throughout the United States. Illustration 1 shows the various locations of existing and projected animal parks

throughout the United States.

ILLUSTRATION 1[8]



The zoo of the future will be "privately run and agressively managed, it will avail itself of museums and schools to serve the educational needs of its community -- not passively, but boldly. It will be a last outpost breeding ground for endangered animals, displaying selected species in their natural environments with the help of unusual displays and electronic techniques".[9] The development of the Wildlife Preserve is accomplishing what the zoo of the future was designed to do.

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[8] Edward R. Ricciuti, "Will Bugs Bunny Save the Tiger?", Audobon, November, 1973, p. 80.

[9] Roger Caras, "Zoos of the Future", International Wildlife, January - February, 1975, p. 15.

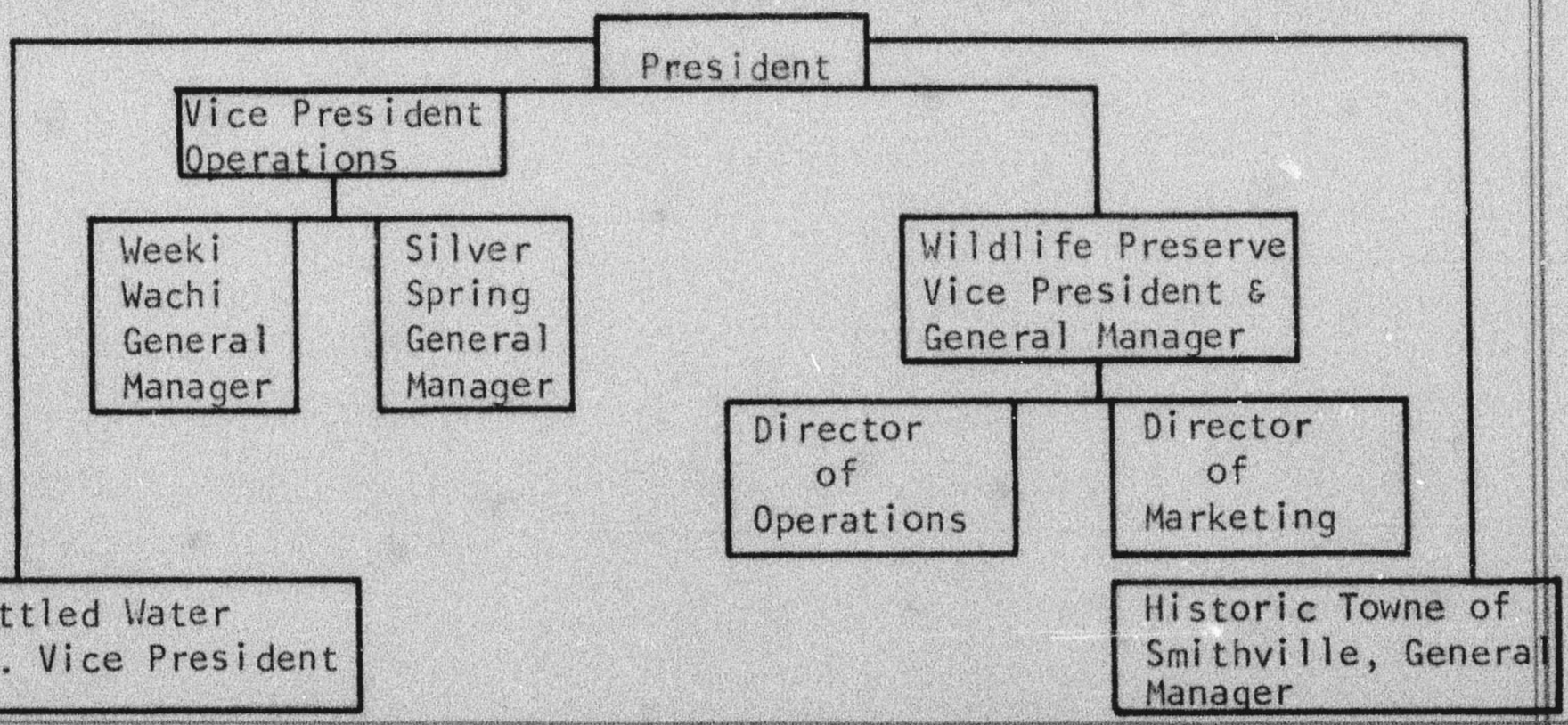
History and Organization

Originally the land that the Wildlife Preserve is presently situated on was owned by the Phelps family of Largo, Maryland. In 1972 the Phelps family sold it to C. T. Industries, a subsidiary of Electronic Data Systems owned and headed by H. Ross Perot, a Texas millionaire. After a while, Mr. Perot lost his initial enthusiasm for his ideas for a "World of Wild Animals" and therefore, sold the land and the concept to The American Broadcasting Companies Incorporated for approximately one million dollars.

ABC Scenic and Wildlife Attractions, a subsidiary of ABC, Inc., took charge of the development of the Wildlife Preserve, and in doing so, completely redesigned and tremendously enlarged it. In addition to the Wildlife Preserve in Largo, Maryland, the other holdings of ABC Scenic and Wildlife Attractions include Silver Springs and Weeki Wachi in Florida, The Historic Towne of Smithville in New Jersey and the Silver

ILLUSTRATION 2

ORGANIZATIONAL STRUCTURE OF ABC SCENIC AND WILDLIFE ATTRACTIONS


President
Vice President Operations
Weeki Wachi General Manager
Silver Spring General Manager
Bottled Water Co. Vice President
Wildlife Preserve Vice President & General Manager
Director of Operations
Director of Marketing
Historic Towne of Smithville, General Manager

Springs Bottled Water Company in Florida. The organizational structure of ABC Scenic and Wildlife Atrractions is explained graphically in Illustration 2.

The initial construction under the ownership and supervision of ABC Scenic and Wildlife Attractions for the Wildlife Preserve started in 1973 and was completed for public entry on July 18, 1974.

The goals that were formulated by ABC Scenic and Wildlife Attractions for the Wildlife Preserve were as follows. The primary goal was to provide the public with recreation, entertainment, and information about animals and man's relationship with the animal kingdom. A secondary objective was the preservation of the diversity of the animal kingdom. Other objectives sought for the Wildlife Preserve included insuring of public and animal safety, producing a zoo without bars, maintaining as many natural features as possible on the site, and establishing prices which are competitive with other events and attractions in the area yet still reasonable.

The Wildlife Preserve will be in its second year of operation when it is again opened for the public on April 26, 1975 and will attempt to carry out the objectives mentioned above. In addition, the future objective planned for the Wildlife Preserve include nightly entertainment by ABC celebrities, midnight safaris and the viewing of animals in The North American Preserve Area while safely and comfortably dining in the

Historic Mansion.

Although private wildlife preserves have located in other regions of the United States, such a facility has only recently been available in the Greater Washington/Baltimore area. Indeed, The Largo Wildlife Preserve presents regionally unique recreational opportunities.

In the next chapter, "The Physical Lay-Out of the Wildlife Preserve", the location, surrounding area and zoning of The Wildlife Preserve, The Bowie-Collington Master Plan, transportation within the Preserve, as well as the buildings and physical design will be discussed.

CHAPTER 4

PHYSICAL LAY-OUT OF THE WILDLIFE PRESERVE

Location

The Wildlife Preserve, first opened on July 18, 1974, and located in Largo, Prince George's County, Maryland, is 12 miles (30 minutes driving time) from the Nation's Capital, and 40 minutes from Baltimore. It is 4.8 miles east from the Capital Beltway and 2.7 miles west of U. S. Highway #301. The Preserve is situated along the Central Avenue Corridor in which nodal development is anticipated especially in the Largo and Bowie areas. Central Avenue serves as the main access point for the Wildlife Preserve. This relatively easy access to a number of major thoroughfares makes access to the Preserve quite convenient for many throughout the Washington and Baltimore Metropolitan Areas.

ILLUSTRATION 3[10]

[10]Largo Wildlife Preserve Brochure.

The site of the Preserve is traversed by a stream and is characterized by an irregular topography. In addition, located on the site is an historic mansion that dates back to 1775. Of the total 405 acreas, 284 have been developed thus far.

Zoning

The immediate area in which the Wildlife Preserve is located is zoned R-R. In this zone, Rural Residential, the uses permitted under Section 13.0 of the 1970 Zoning Ordinance for Prince George's County are as follows: Rural residential, One family detached residential; Agricultural; Accessory professional and home occupations; Public buildings, Parks and Churches.

In addition for any of the specified and permitted uses other criteria have been established. The minimum lot size is 20,000 square feet in general; 15,000 square feet if recorded prior to February 1, 1970, and 10,000 square feet if recorded prior to July 1, 1967. The maximum lot coverage is 25%. The approximate units per acre was established as 1.6 to 3.0 with the maximum buildings height generally 2½ stories but not over 35 feet.

Since the uses permitted in the R-R zone did not include the operation of a commercial recreational attraction such as the Wildlife Preserve, a special exemption was applied for and granted on November 15, 1972, by the District Council. This was granted under Section 28.351 of

the 1970 Zoning Ordinance of Prince George's County with the wording as follows: Commercial recreational attractions, including educational, cultural, historical and similar exhibits and related uses, but excluding such recreation and/or entertainment establishments as baseball, football and/or boxing stadiums, race tracks, drag strips, commerical swimming pools, drive-in theaters, carnival and circuses.

Surrounding Area

The Wildlife Preserve northern boundary is a subdivision known as Northern Ridge which contains 540 lots. To the east is a 624 acre farm owned by the Episcopal Diocese of Washington which is being developed into the Seaton Belt Community with a capacity of 3900 residential units. The above mentioned boundaries(north and east) together with the southern boundary of the Preserve are zoned R-R. West of the Wildlife Preserve on the south side of Central Avenue is the community of Kettering and is zoned R-80 which permits one family detached residential uses, agricultural; accessory professional and home occupation; public buildings parks, and churches with a maximum lot coverage of 30%, 3.0 units per acre and a maximum building height of 40 feet.

The Wildlife Preserve is not the only commercial property. Other areas that are zoned for commercial activities are 151 acres of undeveloped land with frontage on Central Avenue between the Wildlife Preserve and the Capital Beltway. There are additional areas of commercially

zoned land along U. S. 301 and north of its intersection of Central Avenue. Needless to say, the Largo Arena, not far from the Wildlife Preserve, is commercial/recreational in nature. An abundance of multi-family zoning exists in the area west along Central Avenue in the vicinity of Landover Road.

In general, however, the surrounding area has remained basically open by either developing uses that preserve open space such as the Watkins Regional Park or the North Hampton Golf Course/Country Club or by keeping the farms and farmland in their present state.

The General and Master Plans

Thus far, development of the area has been in accordance with both the General Plan and the Bowie-Collington Master Plan, approved and adopted October, 1970, reflecting characteristics of a rural residential development.

The Bowie-Collington Master Plan's Staging District placed the property of the Wildlife Preserve in the "Staged Future Development Area" category. In order to understand the concept of the "Staged Future Development Area" category, it is necessary to explain the staging plan and its objective as set forth by the Bowie-Collington Master Plan. The basic objective was "to provide for a coordinated approach in the provision, location, and timing of various public services and facilities by identifying geographical areas in terms of their character and degree of

development and proposing that each area be dealt with in the Action Program by utilization of combination of planning tools and regulatory devices appropriate to the development status of each area."[11]

The Staging Plan proposed four basic categories indicated as follows: Established Districts; Transitional Districts; Developing Districts, under which came first, second, third and conditional priority areas; and Open Districts, under which were included Permanent Low Density Areas, and Staged Future Development Areas.

Apart from the areas recommended for permanent low density, the Wildlife Preserve property was as proposed, entirely within the planning area. Open Districts, the type of land on which the Preserve is situated, was designated as areas that were anticipated to retain an open character for the next 10 years or longer. As stated in The Bowie-Collington Master Plan "The zoning and the public facility investment criteria will be significantly different for these areas. The character of such an area may be that of agricultural, very low density residential, or natural resource conservation areas. These areas will be subject to appropriate regulatory planning and fiscal tools."[12]

While The Wildlife Preserve was in conflict with the long-range intent of the Bowie-Collington Master Plan, it does not violate the short-

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[11] The 1970 Bowie-Collington Master Plan, p.11.

[12] The 1970 Bowie-Collington Master Plan, p. 12.

range, or staging part of the plan since it does keep the area essentially "open".

In addition, The Wildlife Preserve property was and is within Community VIII of the Plan, an area with a projected dwelling range from 5000 to 8500 and a population range from 18,000 to 30,000. This Community(VIII) was proposed for development only after the rest of the Planning Area had initiated a development sequence. Also, the property of the Preserve, according to the Master Plan, was designated within the confines known as Community System Area 5 of the County Sewerage Plan which did not anticipate sewer or water extension within the next 10 years. To resolve this conflict, a sewerage treatment plant as well as the connecting facilities for a water supply were built at the expense of the Wildlife Preserve.

All in all, the Bowie-Collington Master Plan for this area and property specifies low density and retention of open space. The Wildlife Preserve conforms to these desires for protecting the environment and quality of the area since the greater portion, 90%, of the Wildlife Preserve tract remains in its undisturbed natural state.

The Wildlife Preserve also meets the goals set forth for the Maryland Outdoor Recreation and Open Space Plan by the Maryland Department of State Planning in August, 1974. The goals are to "give high

priority to the location of recreation areas within the Baltimore-Washington, D.C. corridor..., to 'create more wildlife sanctuaries and management areas....and to 'encourage the use of both public and private lands for outdoor recreation."[13]

Transportation Within the Wildlife Preserve

During their first year of operation, the Wildlife Preserve permitted private automobiles to drive through the zoological park and view the animals. This method, however, created many problems. Individual motorists would disobey rules and regulations set forth by the Preserve and get out of their cars to pet or take pictures of the animals, or drive off the established tour route into restricted areas, thereby taunting or endangering the animals and/or themselves. Also tie-ups in the flow of traffic would be caused with visitors stopping their cars for lengthy periods of time either viewing the animal or by having automotive problems.

Therefore the Wildlife Preserve had provided this year, climate-controlled trams that will hold 20 visitors per tram. This will prove beneficial to all concerned. Previously, the occupants of private automobiles on the tour route would turn on their radio to a specified station number to obtain information on the animals being featured in the Preserve. This information did not always coincide with what was being

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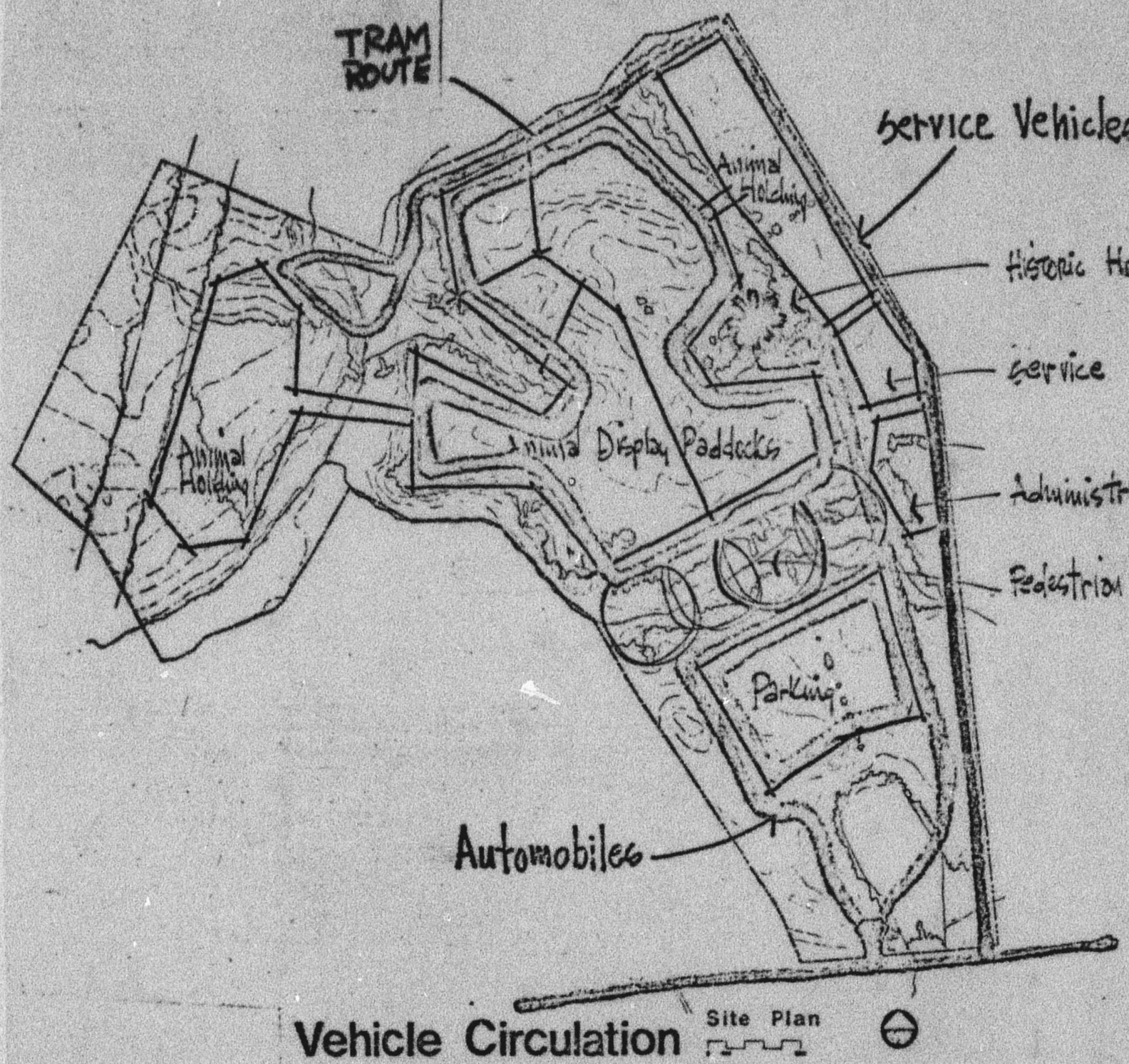
[13] Maryland Department of State Planning, Maryland Outdoor Recreation and Open Space Plan (Summary) (Washington, D.C., 1974), p. 20.

viewed. Therefore, visitors this year will be able to learn and see more since each tram will have a guide. In addition to the increased potentialities for knowledge and relaxation(not worrying if you will hit an animal crossing the path of your car) there will also be a saving on gasoline for each visitor since his private automobile will be parked in the lot, which has a capacity for 1914 vehicles with an overflow capacity of 500 spaces.

The tram route, as depicted in Illustration 4, surrounds the display paddocks where animals roam freely and as shown is quite separate from the pedestrian area allowing for safe and convenient pedestrian access since the area is close to the parking area and thus produces a minimal walking distance. The service vehicles have their own access road and do not hamper or interfere with either pedestrians or trams. In addition, the road to the Historic Mansion, the proposed future restaurant, has its own access road thus adding to the efficiency of the circulation system.

ILLUSTRATION 4[14]



Vehicle Circulation Site Plan

[14] Team Architecture, Alexandria, Virginia.

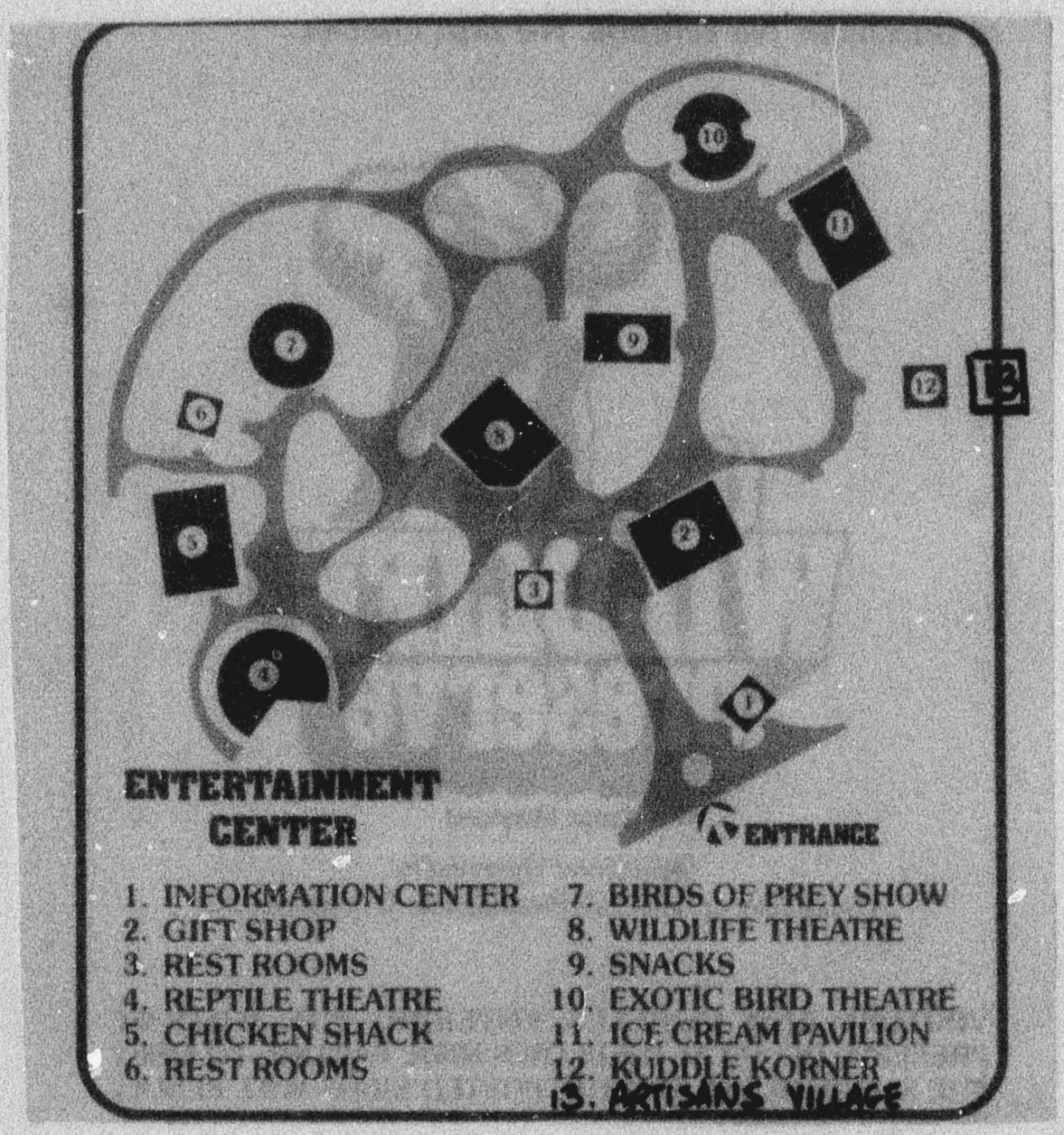
Buildings and Aesthetics

After parking your car in the lot, which was planned so that it is secluded from view and thus does not overshadow the entrance of the Wildlife Preserve, you enter the Wildlife Preserve by crossing over a stream by way of a thatched-roof bridge. (The thatched-roofing has been added to all the buildings this year in order to give the Preserve a "primitive look".) The Entertainment Center is located on the otherside of the bridge and is where one can learn about and cuddle the animals, and buy souvenirs and gifts or refreshments. The topography of the area of the Entertainment Center is rolling in nature. Except for the addition of two man-made ponds it still retains its natural and open quality since grading was minimized and limited to the areas of the roads and buildings. Green space retention is more than adequate since the only tree removal required for development was for small scale buildings and road right-of-ways. In addition, all trees that were 8 inches or smaller in diameter that had to be removed for construction were transplanted whenever possible. Needless to say, the use of asphalt and concrete was used minimally.

All the buildings or structures, whether open or enclosed structures, are ground floor elevations having earth color tones used on their exterior walls. A list of buildings or areas that are within the Entertainment Center are as follows: a glass-enclosed gift shop, the Wildlife Theater, Rest Rooms and Areas, the Birds of Prey Exhibit Area, the

Exotic Bird Show Structure and Area, the Reptile Show Structure and Area, Chicken Shack, Kuddle Korner (barn), Mulch Playground, Ice Cream Pavilion, Jungle Rover Station, Artisans Village, and Kiosk. The following illustration shows the location of the aforementioned within The Entertainment Center's confines.

ILLUSTRATION 5[15]



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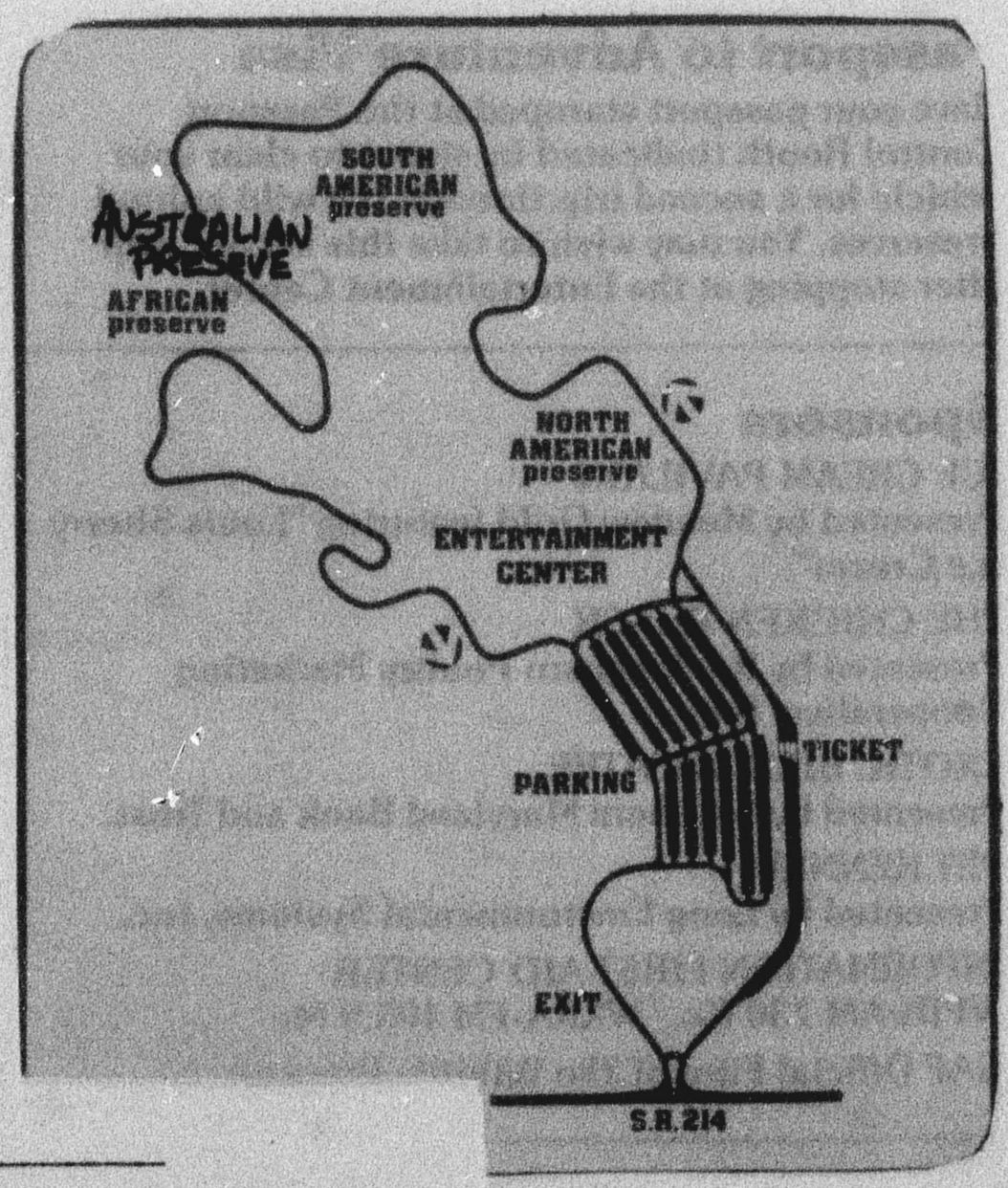
[15] Largo Wildlife Preserve Brochure.

In addition, for the public's convenience there are both dog kennels and information/first aid center provided.

Other buildings not located in the Entertainment Center include Warehouses, Veterinarian Clinic, Main Animal Bar, and Service Administration Buildings.

The 600 animals (100 different species) are kept in the 4 different preserve areas which are located around the area of the Entertainment Center. The four preserve areas are The Australian Preserve Area (new this year), The South American Preserve Area, The African Preserve Area, and The North American Preserve Area. Their locations within the Wildlife Preserve are shown by the following illustration.

ILLUSTRATION 6[16]



16. Largo Wildlife Preserve Brochure.

The individual preserve areas and paddocks within them are separated by fencing, dry moats, plant screening, and earthen berms, thus adding to the aesthetic quality of the Wildlife Preserve while assuring visibility of the animals and safety for both animals and people. In addition most of the animal houses have been properly screened from approaching trams by employment of berms, plant screening, and appropriate roofing material.

As with any major large-scale development there will be substantial impacts on the surrounding areas. The Wildlife Preserve in Largo, Maryland, is no different than any other large commercial project and thus has its share of the effects which influence economic, transportation, safety, health, social aspects of the local community and region. These are discussed in the following chapter.

CHAPTER 5

LOCAL AND REGIONAL IMPACTS

Economic Impact

The Wildlife Preserve's economic impacts consist of providing employment and revenue in the form of sales, amusements and real estate taxes distribution between the State of Maryland and Prince George's County. Of the total staff numbering 230, fifty are local people from the Largo-Bowie area with an additional 10 to 15 young adults being hired during the summer. During the first year of operation the Preserve estimated total tax yield was approximately $200,000, 95% of which went to Prince George's County and the remaining 5% to the State of Maryland. The total tax yield is broken down as follows: real estate tax $90,000 to $100,000; admission tax $80,000 to $90,000; and sales tax $40,000 to $60,000. It has been estimated that the total tax paid by the Wildlife Preserve for Fiscal Year 1975 will be $480,000, due primarily from an increase in the number of visitors from 254,000 as it was in 1974 to between 800,000 to one million visitors in 1975. There will be more admission taxes and sales taxes collected with the increase in the number of visitors to the Wildlife Preserve. In addition, most probably there will also be an increase in the real estate tax since the Preserve has expanded its operation since 1974.

A review of the benefits and costs, as shown in Table 1, will help to make the economic impact more explicit.

TABLE 1[17]

BENEFIT/COST ANALYSIS FOR 1973-1974

Benefits	Value
Land	$2, 210,000
Existing Buildings	5,000
Profitable Income Daily Admissions	18,000
Daily Income from Restaurant	13,500
Daily Income from Souvenirs	2,000
Salvage	200,000
Intangibles-Aesthetics, Tourism, Recreation, Open Space and Wildlife Education/Knowledge.	
Costs	
Acquisition of Land	$1,600,000
Uniform Annual	
Maintenance annual	65,000
Salaries annual	170,000
Taxes	$1,800,000
Depreciation, annually	6,000
Interest payment, annually	$1,200,000
Contingencies	12,000
Engineering	28,000
Construction	400,000
Materials	270,000
Optimization	38,000
Overhead	160,000

[17] Bradon Smith of Greenhorne and O'Mara, Riverdale, Maryland.

Table 1(continued)

Benefit/Cost Ratio for 10 year Life of the Project

Benefits	Costs
$ 2,210,000	$ 1,600,000
5,000	$20,350,000
$ 117,300,000	60,000
57,000	1,200,000
200,000	12,000
	28,000
	400,000
	270,000
	38,000
	160,000
$ 119,772,000	$24,118,000

$$B/C = \frac{119,772,000}{24,118,000} = 4.96$$

As is shown by the Benefit/Cost Analysis of the Wildlife Preserve project, benefits outweigh the costs for the 10 year life of the project. As in the majority of large scale endeavors, the initial "start-up" costs usually outweigh the benefits. However, with time and project development, this pattern rapidly reverses itself. From this analysis it is shown that the economic feasibility of this project was positive from the start.

Obviously, the Wildlife Preserve has greatly increased the tax base while requiring relatively little services from the county. At the same time the land has been kept in a basically natural state.

Transportation Impact

The Wildlife Preserve has 1058 feet of frontage along the north

side of Central Avenue, where all access to the Preserve is located. That road, Maryland Route 214, is presently a two-lane state road with an average daily capacity, estimated by the State Highway Administration, to be 10,000. It was included as part of the Maryland State Roads Commission Five Year Plan. The proposed construction program(1972-1976) by the State Highway Administration called for the dualization of Md. 214 from a point at the east of the Beltway to the beginning of the existing dualization (4 lanes) west of U.S. 301. However, recently the budget has been cut for construction of the dualization although not for the engineering study. Therefore, Central Avenue will not be dualized in the immediate future as previously thought.

With the present daily volume being approximately 6700 ADT(Average Daily Traffic), an additional 1000 or so vehicles per day would not cause an overload of the roadway capacity. In addition, the useage this year of trams will assure that there will be no backing up of cars along Central Avenue while waiting in cars to purchase tickets or follow the tour route as initially done. This year visitors to the Wildlife Preserve will just drive in and immediately park their cars. However, an addition of 1000 vehicles or so per day could affect the intersection which would in turn have considerable effect on the entire highway capacity.

Central Avenue, as characterized by the State Roads Commission, has a Level C Capacity which means that it has the capacity for

between 900 to 1400 vehicular trips per hour. In addition, it was determined that traffic generation from the Wildlife Preserve would be less than that of traffic generated by development of the same property for residential use.

With the average daily traffic count on Central Avenue being 6700 cars and the projected ADT for the Wildlife Preserve being estimated at 1500 cars, the combined ADT of 8250 is less than the 10,000 daily car capacity of the road. However, on Sunday afternoons during the summer months, traffic problems could result if peak hour (11:00 a.m to 3 p.m.) with a maximum peak hour of 2 p.m.) for both Central Avenue and the Wildlife Preserve occur at the same time. Table 2 depicts the projected peak hour trips for weekdays and Sundays through 1978.

TABLE 2[18]

PROJECTED PEAK HOUR TRIPS WEEKDAYS AND SUNDAY FISCAL YEAR 1972 -FISCAL YEAR 1978

YEAR	DAY	TIME PERIOD	CENTRAL AVENUE PEAK HOUR TRIPS	CENTRAL AVENUE ANNUAL INCREASE TRIPS	ZOO TRAFFIC WEST OF INTER-SECTION -TRIPS	CENTRAL AVENUE PLUS ZOO PARK TRIPS	LEVEL OF SERVICE
1972	Weekdays	5 p.m to 6 p.m.	670	80	-	670	C
1973			750	80	156	906	C
1974			830	80	156	986	C
1975			910	80	156	1066	C
1976			990	80	156	1146	C
1977			1070	80	156	1216	C
1978			1150	80	156	1306	A
1972	Sunday	4 p.m. to 5 p.m.	846	100	-	846	C
1973			946	100	135	1081	C
1974			1046	100	135	1181	C
1975			1146	100	135	1281	C
1976			1246	100	135	1381	C
1977			1346	100	135	1481	D
1978			1446	100	135	1581	A
1972	Sunday	2 p.m. to 3.p.m.	701	84	-	701	C
1973			785	84	162	974	C
1974			869	84	162	1031	C
1975			953	84	162	1115	C
1976			1037	84	162	1199	C
1977			1121	84	162	1283	C
1978			1205	84	162	1367	A

18. Source: Maryland State Highway Administration

However, any problems that arise due to traffic congestion at peak hours might possibly be eliminated in the future with the resumption of the dualization of Central Avenue and the planned future extension of the Metro to Largo.

Safety Impact

-Fencing

The property boundary of the Wildlife Preserve is surrounded by two 12 foot high cyclone fences that seal off the park from the surrounding areas. They help to keep the people out and the animals in. Additional cyclone fencing ranging from 9 to 13 feet in height and dry moats with metal railings encompass each animal paddock and is constructed according to the particular trails of the respective animals. Standard electrified livestock fencing is added to the fences mentioned if it is required to insure the safety of both the animals and the visitors of the Wildlife Preserve. In addition to the fencing, there is a 100 foot buffer along the periphery of the property with planned sight and sound barriers.

-Animal Safety

Animal "holding pens" surround each building to contain the animals in any emergency situation, and manually operated gates permit each paddock to be sealed by the park wardens. In addition, animals are housed in their respective quarters or night holding areas before dark each day.

The park's veterinarian has a vehicle at his disposal with a two-

way radio, tranquilizer gun and tranquilizers to administer quick aid to all animals in the Wildlife Preserve. The veterinarian also has the appropriate equipment to dispose of an animal, if it is required.

-Park Surveillance

The Wildlife Preserve is patrolled during the non-operating hours, and patrol personnel have the means for radio contact with the park management at all times.

-Fire

Each building on the Wildlife Preserve is equipped with appropriate fire fighting equipment recommended by Prince George's County Fire Marshall. All employees have been trained to use this equipment. A vehicle with portable fire fighting equipment is used in all areas of the park. This vehicle contains a water tank and appropriate substances and equipment to service vehicles, foliage and building fires. The Wildlife Preserve also has six fire hydrants that are distributed so that they can provide proper coverage for all buildings as well as the car park area.

Health Impact

-Air Pollution

As far as odor from the animals, or any potential noxious fumes from the trams and other vehicles is concerned, there is sufficient open space to dissipate any potential accumulation. Barriers such as trees, and other foliage between the Wildlife Preserve and the surrounding

areas also help to stop any potential odor build-up. In addition, animal waste products are removed from the Wildlife Preserve and furnished to horticulturist organizations or to others who wish to accept it.

-Noise Pollution

The impact of noise on areas surrounding the Wildlife Preserve is indeed minimal. The noise from animals in the Preserve has been found to be very low and has not created any disturbance to the residents of the area. The Wildlife Preserve did provide for sound barriers by having a 100 foot buffer between it and its neighbors. As far as noise from cars and trams goes, it has also been found to be quite low and non-bothersome to surrounding area residents and others in the vicinity of the Preserve.

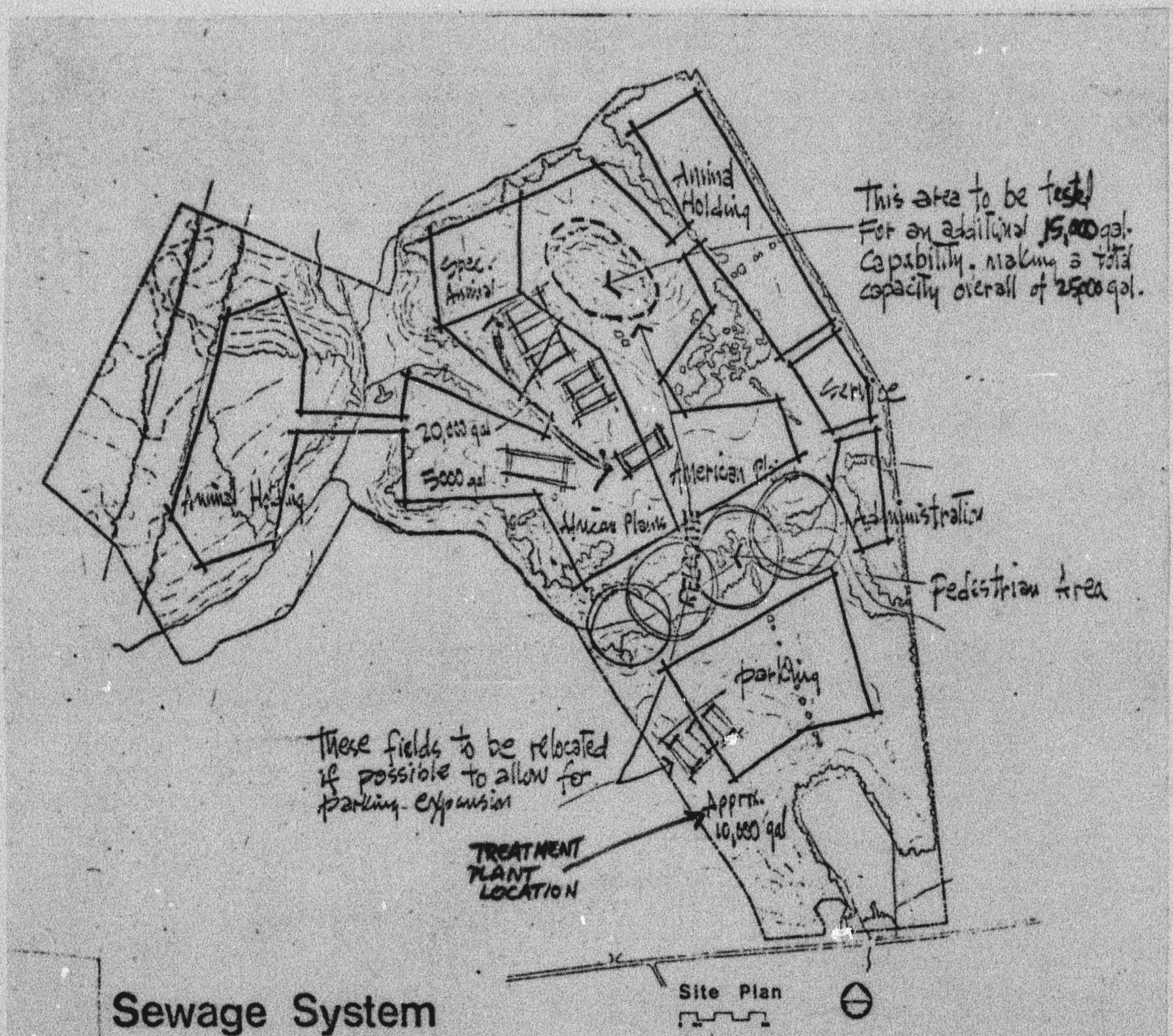
-Sewerage (Human)

The Wildlife Preserve as previously stated was in an area that was not designated as having provisions for sewerage facilities extension in the near future. Therefore the Wildlife Preserve had to build their own sewerage facilities. It was found that sewerage from visitors, employees and restaurant operation would amount to 10 gallons per person. On a busy day this could total 50,000 gallons of sewerage. In order to safely dispose of this peak sewerage flow, a large underground system which distributed the sewerage to numerous areas was built. In addition, since it was found through numerous percolation tests that some areas had poorer percolation than others, it was also essential for the Wild-

life Perserve to provide a centralized aerobic treatment system which was followed by filtering and controlled distribution to underground drainfields. Therefore, if a problem developed at one area, it was a relatively simple matter to divert its flow to other disposal areas.

In Illustration 7 the Sewage System of the Wildlife Preserve depicts the drainfields and capacities, planned future changes of the system, and the location of the treatment plant that makes this possible.

ILLUSTRATION 7[19]



19 Team Architecture, Alexandria, Virginia.

Impact on the Neighborhood

The chief concern of the Kettering Civic Association, the Prince George's Environmental Coalition, and the Seaton-Belt Advisory Board and the major citizen groups, was that this project would alter the relatively unspoiled character of the neighborhood for the foreseeable future. It was felt that this large scale commercial project would spawn undesirable and unplanned development of drive-ins, motels and gasoline stations along Central Avenue. This has yet to be seen or proven, but needless to say, does have its possibilities. However, one must remember that the Bowie-Collington Master Plan's suggestions for the area and the existing low density zoning do establish some sort of control and guideline for future development in this area.

CHAPTER 6

PUBLIC WILDLIFE PRESERVES

Needless to say, The Wildlife Preserve is only one location where wildlife can be observed and appreciated. Throughout the United States there are numerous publicly-owned wildlife preserves. Some are small endeavors, such as nature centers owned by villages, towns and small cities. Others are larger in scale and have been developed at the county, state, and nationai levels. Despite the differences of size, all share common characteristics. For example, they have been established to provide land for preserving and protecting wildlife within an environment which provides learning experiences for the public while, at the same time, provides outdoor recreational opportunities.

Federal Holdings

The Bureau of Sport Fisheries and Wildlife under the U.S. Department of the Interior has established many National Wildlife Refuges throughout the United States. In 1903, President Theodore Roosevelt first started the National Wildlife Refuge System by setting aside Pelican Island on the east coast of Florida in order to protect a nesting colony of pelicans and herons. President Roosevelt later established additional refuges on public lands. In addition the Congress set aside more areas and succeeding Presidents established a number of refuges by

special orders. It was only in 1929 that a system of refuges became firmly established by Law. Over 350 refuges, totaling 30 million acres, are now in the Wildlife Preserve System.

There are five National Wildlife Refuge Classifications as follows: Migratory Bird Refuges(Waterfowl), Migratory Bird Refuges(General), Big Game Refuges, Game Refuges, and Alaska Wildlife Ranges. For all the types of refuges the objectives are the same. "The National Wildlife Refuge System's mission is 'to provide, manage, and safeguard a national network of lands and waters sufficient in size, diversity, and location to insure the protection of wildlife of all types, and to provide environments in which human relationships with land and wildlife are encouraged."[20] Various types of outdoor recreation can be enjoyed in the many National Wildlife Refuges. These activities include sightseeing, bird-watching, picnicking, photography, boating, hiking and fishing.

In Maryland four National Wildlife Refuges have been established. Blackwater National Wildlife Refuge was established in 1933 on the eastern shore of Chesapeake Bay. This 11,627 acre area serves as in important waterfowl resting and feeding ground. Under the supervision of the Blackwater National Wildlife Refuge are the Susquehanna National Wildlife Refuge, containing 3.8 acres and established in 1954, and the Martin National Wildlife Refuge in Chesapeake Bay. The Eastern Neck National

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[20] U.S. Department of the Interior, "National Wildlife Refuges 1970", (Washington, D.C., 1970), p. 1

Wildlife Refuge established in 1962, contains 2,286 acres, is located in Rock Hall, Maryland. It is an important wintering area for waterfowl, a nesting area for black ducks and wood ducks, and a habitat for the endangered Delmarva Peninsula fox squirrel.

The State of Maryland

In addition to the Wildlife Preserve in Largo, Maryland, and the National Wildlife Refuge System, the State of Maryland has established wildlife areas. As of 1973, the State of Maryland had in its possession 66,500 acres devoted to wildlife, with an additional 32,900 acres anticipated for acquisition.

Within the Suburban Washington Region(Montgomery and Prince George's Counties) there are many areas that have been established and devoted to wildlife, nature study, recreation and the like. Table 3 that follows shows the number of areas devoted to open space, recreation and wildlife in the Suburban Washington Region. (For further explanation and clarification please see APPENDIX).

TABLE 3[21]

NUMBER OF RECREATION/WILDLIFE/NATURAL AREAS
WITHIN THE SUBURBAN WASHINGTON REGION

	MAJOR ORIENTATION OF AREA		
	Recreation	Wildlife	Natural Area
Prince George's County	11	4	9
Montgomery County	11	1	14

[21] Maryland Department of State Planning, Maryland Outdoor Recreation and Open Space Comprehsnsive Plan-Phase 2(Pennsylvania)1971,p.69-71.

In summation, these areas do not provide opportunities for viewing exotic and unusual animals, such as lions, elephants, llamas, to name only a few, offered by the Wildlife Preserve; they do provide, however, the opportunity of seeing more common forms of wildlife in their natural habitats and provide the chance for outdoor recreational opportunities and generally increase our knowledge of the natural environment.

CHAPTER 7

CONCLUSION

As has been previously stated, the need and demand for outdoor recreation has been steadily increasing since World War 1. In addition, the demand for outdoor recreation one-half hour from home has been increasing at an even greater rate. However, urban development has been encroaching on open space and thus has limited outdoor recreation and wildlife areas in the metropolitan areas where it is so desperately needed. The need for open space, outdoor recreation and wildlife habitats, as well as other natural environmental amenities, is fast becoming more acute as population levels increase, leisure time and recreational interests rise while convenient available lands diminish. This study has reviewed several legal and/or planning tools, which provide a number of ways of preserving open space. To be sure, other more effective techniques are needed.

The Wildlife Preserve, although a commercial enterprise, has still performed a public service by providing residents of the Greater Washinton Metropolitan Area a convenient(30 minute ride) outdoor recreation opportunity while providing for the continuance of certain species of wildlife, and the public's education about them, while retaining open space in the Suburban Washington Area. The fastest growing region in the

State of Maryland, is where the greatest concentration of recreation demand and thus the need for preservation of open space, and wildlife lands exist.

The "zoos of the future", such as the Wildlife Preserve in Largo, Maryland, are here to stay. Certainly adequate planning is essential if this recreational form is to provide sorely needed leisure time activities. Aspects of this plan and the planning process were reviewed and discussed in the chapters dealing with the physical lay-out of the Wildlife Preserve and its impacts. The aesthetics of this project were not overlooked but were provided for in a number of important ways. As far as impacts are concerned, it was shown that no appreciable negative impact could be discerned at present.

Although this type of venture is new to this specific area, the concept of a wildlife preserve is not. Both the Federal and State of Maryland Governments have developed many preserves in the Suburban Washington area, as well as other areas. Private or public, these wildlife preserves are producing similar recreational results. They are retaining open space while at the same time providing wildlife with a suitable environment and people with the chance to realize outdoor recreation opportunities while learning about and observing nature.

This study, clearly is not without its limitations. The study guidelines, of necessity, overlooked several important areas of study;

and the analysis of such issues as impacts of surrounding areas was necessarily cursory. The material in this report is based to a large extent on discussions with many individuals representing public and private organizations. The finer details and/or exact figures, such as financial, needless to say, were difficult and sometimes impossible to obtain and were not always well-documented.

For future research I believe it would be wise to review other private wildlife preserves of various sizes and ownership patterns. Private organizations dedicated to providing land for wildlife should also be studied. Lastly, legislation dealing with land as it applies to wildlife and outdoor recreation should be included in a future analysis.

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Interviews

Mike Donahoe, November, 1974.

Sergio Rodriquez, February, 1975.

Brandon Smith, October, 1974.

APPENDIX

LIST OF RECREATION/WILDLIFE/NATURAL AREAS[22] WITHIN THE SUBURBAN WASHINGTON REGION

Area	Location	Major Orientation	Suggested Compatible Activities
Acquasco Farm	Prince George's County	Wildlife	Wildlife, conservation & compatible General Recreation
Beltsville Limited Recreation	Prince George's County	Limited Recreation	Picnicking, hiking, birdwatching
Black Paint Recreation Area	Mongomery County	Water and limited recreation use	Hiking, nature study, sightseeing
Black Swamp Creek	Prince George's County	Water & Natural Area	Hiking conservation and wildlife
Broad Run Conservation Area	Montgomery County	Natural Area	Hiking and birdwatching
Cabin John Creek	Montgomery County	Natural Stream Valley & limited recreation	Hiking, nature study
Cabin John Regional Park	Montgomery County	Intensive recreation uses	Nature study, hiking, swimming
Cedarville State Park and Forest	Prince George's County	Forest and multi-purpose recreation area	Nature study, camping, hiking

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22 Maryland Department of State Planning, p. 69-71.

Area	Location	Major Orientation	Suggested Compatible Activities
Charles Branch Conservation Area	Prince George's County	Water, & natural area	Hiking, nature study, bird-watching
Chesapeake & Ohio Canal	Montgomery County	Potomac River & Natural Area	Nature study, hiking, boating, bicycling
Collington Branch Conservation Area	Prince George's County	Water & Natural Area	Nature study, hiking, bird-watching
Cosca Regional Park	Prince George's County	Intensive recreation uses	Hiking, nature study, limited camping
Danville Regional Park	Prince George's County	Lake & nature - oriented recreation area	Nature study, camping, boating
Dickerson Regional Park	Montgomery County	Natural & limited recreation	Hiking, nature study
Dry Seneca Creek Conservation Area	Montgomery County	Natural stream valley	Hiking, bird-watching
Goshen Branch Conservation Area	Montgomery County	Natural area	Bird-watching, hiking
Goshen Regional Park	Montgomery County	Intensive recreation uses	Nature study, hiking
Greenbelt Regional Park	Prince George's County	Intensive recreation activities	Nature study, hiking, camping
Hall Recreation Area	Prince George's County	Nature oriented recreation activities	Nature study, hiking, bird-watching

Area	Location	Major Orientation	Suggested Compatible Activities
Horsepen Regional Park	Montgomery County	Nature & limited recreation	Nature study, hiking, picnicking
Hunters Mill Branch	Prince George's County	Natural area	Hiking & nature study
Little & Great Seneca, Limited Use Area	Montgomery County	Natural stream valley	Nature study, hiking,
Little Falls Park	Montgomery County	Natural stream valley & limited recreation	Nature study, hiking, limited sports
Mataponi Creek Conservation & Recreation Area	Prince George's County	Conservation & limited activities	Nature study, hiking
Mattawoman Natural Environmental Area	Prince George's County	Wetlands, forest & wildlife	Nature study, hiking
Mt. Calvert Regional Park	Prince George's County	Water & intensive recreation uses	Hiking, nature study
Muddy Branch	Montgomery County	Natural stream valley	Nature study, hiking
Norbeck Branch	Montgomery County	Natural area	Bird-watching & hiking
Northwest Branch Park	Montgomery County	Stream valley	Nature study, picnicking, hiking
Nottingham Regional Recreation Area	Prince George's County	Water & recreation	Nature study, hiking, boating, sports

Area	Location	Major Orientation	Suggested Compatible Activities
Patuxent Recreation Area	Montgomery County	Patuxent River, natural area	Hiking, nature study, swimming
Patuxent River Watershed Area	Montgomery County	Natural area & limited recreation	Nature study, hiking
Piney Grove Regional Park	Montgomery County	Intensive recreation uses	Nature study, sports, hiking
Piscataway Creek Park	Prince George's County	Stream valley	Nature study, hiking
Piscataway Creek Recreation Center	Prince George's County	Water recreation use	Nature study, swimming, boating picnicking
Reddy Branch	Montgomery County	Natural area	Hiking, bird-watching
Rock Creek Regional Park	Montgomery County	Intensive recreation use	Nature study, hiking, swimming
Rosaryville State Park	Prince George's County	Intensive recreation use	Nature study, historic, cultural
Sligo Creek Park	Montgomery County	Stream valley	Nature study, hiking
Sligo/Northwest Branch Activity Center	Prince George's County	Stream valley, recreation	Nature study, boating, hiking
Spice Creek Recreation Area	Prince George's County	Water & recreation	Nature study, boating

Area	Location	Major Orientation	Suggested Compatible Activities
Swanson Creek	Prince George's County	Water, forest & open space	Conservation, wildlife, hiking
Tenmile Creek Conservation Area	Montgomery County	Natural stream valley	Hiking, & bird-watching
Tinkers Creek	Prince George's County	Natural area	Hiking & nature study
Tridelphia Reservoir	Montgomery County	Water & limited recreation use	Nature study, hiking
Watkins Regional Park	Prince George's County	Intensive recreation uses	Nature study, limited camping
Watts & Kolgour Branch, limited use	Montgomery County	Natural stream valley	Hiking, nature walks & study
Western Branch Conservation Area	Prince George's County	Natural area & water	Hiking, nature study & bird-watching
Wheaton Regional Park	Montgomery County	Intensive recreation uses	Nature study, hiking, sports

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